

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1 (Currently Amended) A method of preventing interference in a communication system comprising the steps of:

generating a fixed reuse pattern in a service area from a high altitude communications device, said pattern having at least a first resource cell and a second resource cell;

selectively suppressing a side lobe of a beam having a first resource to form a suppressed portion and a non-suppressed portion so that said a non-side lobe suppressed portion aligns with a said second resource cell ~~having said second resource~~.

A2 2. (Original) A method as recited in claim 1 wherein the step of selectively suppressing comprises the step of reshaping the antenna to suppress side lobe interference at the interference locations.

3. (Original) A method as recited in claim 2 further comprising the step of maintaining the shape of the antenna in non-interference locations.

4. (Original) A method as recited in claim 1 wherein said first resource and said second resource comprise a frequency.

5. (Original) A method as recited in claim 1 wherein said first resource and said second resource comprise polarization.

6. (Original) A method as recited in claim 1 wherein said first resource and said second resource comprise an orthogonal code.

7. (Original) A method as recited in claim 1 wherein said high altitude communication device comprises a satellite.

8. (Original) A communication system as recited in claim 1 wherein said high altitude communication device comprises a stratospheric platform.

9. (Currently Amended) A communication system comprising:
a high altitude communication device having an antenna for generating a first plurality of beams, each of said plurality of beams having a first frequency resource, a plurality of main lobes directed to one of a first plurality of cells, and a plurality of side lobes and a second plurality of beams having a second resource directed to one of a second plurality of cells,

1A2 said antenna formed so that said side lobes of said first plurality of beams are selectively suppressed in said first plurality of cells having said first resource and said side lobes are unsuppressed in the second plurality of cells.

10. (Original) A communication system as recited in claim 9 wherein said high altitude communication device comprises a satellite.

11. (Original) A communication system as recited in claim 9 wherein said high altitude communication device comprises a stratospheric platform.

12. (Original) A method as recited in claim 9 wherein said first resource and said second resource comprise a frequency.

13. (Original) A method as recited in claim 9 wherein said first resource and said second resource comprise polarization.

14. (Original) A method as recited in claim 9 wherein said first resource and said second resource comprise a code.

15. (Currently Amended) A method of forming a communication system comprising the steps of:

generating a fixed reuse pattern having a maximum capacity having a first beam having a first resource and a plurality of second beams having the first resource;

identifying interference locations of said first beam relative to said ~~second~~ plurality of second beams; and,

selectively reshaping the antenna to selectively suppress interference at the interference locations.

16 (Original) A method as recited in claim 15 further comprising the step of maintaining the shape of the antenna in non-interference locations.

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17 (Original). A method as recited in claim 15 wherein said first beam has a first resource and said second beam has said first resource, wherein said interference locations correspond to a side lobe of said first beam corresponding to said second beam.

18. (Original) A method as recited in claim 17 wherein said first resource and said second resource comprise a frequency.

19. (Original) A method as recited in claim 17 wherein said first resource and said second resource comprise polarization.

20. (Original) A method as recited in claim 17 wherein said first resource and said second resource comprise an orthogonal code.

21. (New) In a fixed cell communication system having a fixed reuse pattern, a method of reducing interference between beams having sidelobes, comprising:

selectively performing side lobe suppression only for beams using a same communication resource.

A2 22. (New) A method as recited in claim 21, further comprising generating the beams using an antenna on-board a high altitude communication device.

23. (New) A method as recited in claim 22, wherein the high altitude communication device is a satellite.

24. (New) A method as recited in claim 23, wherein the high altitude communication device is a stratospheric platform.
